

REMARKS

Upon entry of the present amendment, claims 1-20 will remain pending in the above-identified application and stand ready for further action on the merits.

Claims 1-3, 7-8 and 16-17 have been amended. The present amendments made herein to the claims do not introduce new matter into the application as originally filed. Specifically, the amendment to claims 1, 7 and 16 to insert the phrase "wherein said negative electrode has a density of at least 1.50 g/cm³" finds support at page 14, lines 7-10 of the specification.

The additional amendments to claims 2-3, 8 and 17 are primarily grammatical in nature and are intended to put the claims into a better format for issuance in a United States Patent.

Based on the above considerations, entry of the instant amendment is respectfully requested, as is favorable action on the merits. In this regard, the instant amendment to the claims necessitates no further search on the Examiner's part.

Claim Rejections – 35 USC § 112

Claims 2-3, 8 and 17 are rejected under 35 USC § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Reconsideration and withdraw of the above rejection is respectfully requested based on the following considerations.

Claims 2-3, 8 and 17 have been amended herein, so that the same particularly and distinctly set forth the invention that the Applicants regard as their own. That is all that the statute (35 USC § 112, second paragraph) requires.

As stated in M.P.E.P. §§ 2173.01 and 2173.02 :

A fundamental principle contained in 35 U.S.C. 112, second paragraph is that applicants are their own lexicographers. They can define in the claims what they regard as their invention essentially in whatever terms they choose so long as any special meaning assigned to a term is clearly set forth in the specification. See MPEP § 2111.01. Applicant may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the court in In re Swinehart, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.

The examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. 112, second paragraph, is whether the claim meets the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available. When the examiner is satisfied that patentable subject matter is disclosed, and it is apparent to the examiner that the claims are directed to such patentable subject matter, he or she should allow claims which define the patentable subject matter with a reasonable degree of particularity and distinctness. Some latitude in the manner of expression and the aptness of terms should be permitted even though the claim language is not as precise as the examiner might desire. Examiners are encouraged to suggest claim language to applicants to improve the clarity or precision of the language used, but should not reject claims or insist on their own preferences if other modes of expression selected by applicants satisfy the statutory requirement.

Therefore, it is respectfully submitted that this rejection has been overcome and must be withdrawn.

Claim Rejections – 35 USC § 103(a)

Claims 1-20 are rejected under 35 USC § 103(a) as being unpatentable over **Kizu et al.** US '739 (US 2003/0165739) in view of **Takami et al.** US '387 (US 5,753,387).

Reconsideration and withdraw of the above rejection is respectfully requested based on the following considerations.

Legal Standard for Determining Prima Facie Obviousness

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations.

The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

“There are three possible sources for a motivation to combine references: the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art.” *In re Rouffet*, 149 F.3d 1350, 1357, 47 USPQ2d 1453, 1457-58 (Fed. Cir. 1998) (The combination of the references taught every element of the claimed invention, however without a motivation to combine, a rejection based on a *prima facie* case of obvious was held improper.).

“In determining the propriety of the Patent Office case for obviousness in the first instance, it is necessary to ascertain whether or not the reference teachings would appear to be sufficient for one of ordinary skill in the relevant art having the reference before him to make the proposed substitution, combination, or other modification.” *In re Linter*, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kotzab*, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also *In re Lee*, 277 F.3d 1338, 1342-44, 61 USPQ2d 1430, 1433-34 (Fed. Cir. 2002) (discussing the importance of relying on objective evidence and making specific factual findings with respect to the motivation to combine references); *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The Supreme Court of the United States has recently held that the teaching, suggestion, motivation test is a valid test for obviousness, but one which cannot be too rigidly applied. See *KSR Int'l Co. v. Teleflex Inc.*, 127 SCt 1727, 82 USPQ2d 1385 (U.S. 2007). The Supreme Court in *KSR Int'l Co. v. Teleflex, Inc.*, *ibid.*, reaffirmed the Graham factors in the determination of obviousness under 35 U.S.C. § 103(a). The four factual inquiries under Graham are:

- (a) determining the scope and contents of the prior art;
- (b) ascertaining the differences between the prior art and the claims in issue;
- (c) resolving the level of ordinary skill in the pertinent art; and
- (d) evaluating evidence of secondary consideration.

Graham v. John Deere, 383 U.S. 1, 17-18, 148 USPQ 459, 467 (U.S. 1966).

The Court in *KSR Int'l Co. v. Teleflex, Inc.*, *supra.*, did not totally reject the use of "teaching, suggestion, or motivation" as a factor in the obviousness analysis. Rather, the Court recognized that a showing of "teaching, suggestion, or motivation" to combine the prior art to meet the claimed subject matter could provide a helpful insight in determining whether the claimed subject matter is obvious under 35 U.S.C. § 103(a).

Even so, the Court in *KSR Int'l Co. v. Teleflex, Inc.*, *ibid.*, rejected a rigid application of the "teaching, suggestion, or motivation" (TSM) test, which required a showing of some teaching, suggestion, or motivation in the prior art that would lead one of ordinary skill in the art to combine the prior art elements in the manner claimed in the application or patent before holding the claimed subject matter to be obvious.

Further, the Examiner bears the initial burden of presenting a *prima facie* case of obviousness. *In re Oetiker*, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). "[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." *In re Kahn*, 441 F.3d 977, 988, 78 USPQ2d 1329, 1336, quoted with approval in *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007).

Distinctions Over the Cited Art

One of the characteristics of the present invention is that the negative electrode comprises an aqueous binder, carbon black and graphite.

Aqueous binders have a larger binding effect than solvent-type binders and increase the ratio of an active material in the same volume of an electrode and in turn the capacity of the electrode. For example, in the instant specification it is disclosed that:

In general, the negative electrode of a lithium ion secondary cell contains a binder to bind the particles of the active material to maintain the shaped body of the negative electrode. The binders include solvent-type binders which use organic solvents as liquid media, such as polyvinylidene fluoride, and aqueous binders which use water as a liquid medium such as the mixture of a styrene-butadiene rubber and carboxymethylcellulose. In these years, the aqueous binders are actively used, since they have a larger binding effect than the solvent-type binders and increase the ratio of the active material in the same volume of the electrode and in turn the capacity of the electrode.

(See page 3, lines 9-21 of the present specification.)

However, such a larger binding ability may have an adverse effect. That is, when a negative electrode contains the aqueous binder and graphite but no carbon black, the layer of the negative electrode mixture is easily transferred to rolls in the step of press-forming. Furthermore, when the density of the negative electrode is increased to, for example, 1.50 g/cm^3 or more to increase the capacity and the energy density of a battery, the transfer of the negative electrode layer to the rolls is enhanced. For example in the instant specification it is described that:

If a negative electrode is produced using no carbon black, the layer of the negative electrode mixture is easily transferred to rolls in the step of press-forming when the electrode has a density of 1.50 g/cm^3 or more....

(See page 13, line 28 to page 14, line 3 of the present specification.)

To suppress such transfer of the layer of the negative electrode, the present invention adds carbon black to the negative electrode. Accordingly, the negative electrode is not transferred to the rolls, although it has a density of at least 1.50 g/cm^3 . Such an effect of the

present invention would not be expected from Kizu US '739, which does not describe or teach the use of an aqueous binder, or Takami US '387 which does not describe or teach the addition of carbon black.

Accordingly, based on such considerations, it is submitted that the disclosures of Kizu et al. US '739 and Takami et al. US '387 are incapable of rendering the claimed invention unpatentable under the provisions of 35 USC § 103(a). Any contentions of the USPTO to the contrary must be reconsidered at present.

CONCLUSION

Based upon the amendments and remarks presented herein, the Examiner is respectfully requested to issue a Notice of Allowance clearly indicating that each of pending claims 1-20 are allowed and patentable under the provisions of Title 35 of the United States Code.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact John W. Bailey (Reg. No. 32,881) at the telephone number below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Application No. 10/715,363
Amendment dated September 19, 2007
After Final Office Action of June 27, 2007

Docket No.: 0020-5200P

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

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Respectfully submitted,

By 

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